



Faculty of Earth Sciences



Department of Mineral Resources & Rocks 3rd & 4th Years Program



The Geological Society
Accredited degree courses

PRICIPLE OF GEOCHEMISTRY

Course Name	Course ID	Prerequisites
Principle of Geochemistry	EMR 241	EMR 201 and CHEM 110, CHEM 281

Time Table for Course Lectures

INTRODUCTION TO BASIS GEOCHEMISTRY (EMR 241)

Week	Lecture Topic
1	Introduction - Atoms – Elements
2	Periodic Table
3	Origin of the Universe- Abundance of elements in the universe - origin of elements in the universe
4	Meteorites and their classification Chemical composition of meteorites
5	Internal structure of the Earth Chemical composition of the crust and mantle
6	Geochemical classification of elements (Lithophile, Chalcophile, Siderophile and Atmophile elements)
7	Crystal chemistry Types of chemical bonds Ionic radius – polymorphism – pseudomorphism ^[1]
8	Geochemistry of Igneous rocks ^[2] Magma, origin and source of magma
9	Major and minor elements in igneous rocks
10	Trace elements in igneous rocks Goldschmidt roles of substitution – compatible elements- Incompatible

	elements
11	Geochemistry of Sedimentary Rocks (Weathering and weathering products)
12	Geochemistry of Sedimentary Rocks (Deposition of the weathering products and their chemical composition)
13	Geochemistry of Metamorphic Rocks (Metamorphic reactions – behaviour of elements during metamorphism)
14	Introduction to isotope geology Introduction to hydro-geochemistry

References:

Principles of Geochemistry, by Gazzaz, M.A. and Hashad, A.H., [1]
1420. Scientific Publishing Centre, KAU (in Arabic)

Using Geochemical Data: evaluation, presentation, interpretation, [2]
by Rollinson, H.R., 1993. Longman Group Limited